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May 15, 2018

Mr. Ben Conetta, Chief  
U.S. Environmental Protection Agency  
Region 2  
290 Broadway  
New York, NY 10007-1866

**Re: Standard Operating Procedures for the Ongoing 2016 Residential Drinking-Water Well Surveying and Sampling Program  
Chemours Chambers Works, Route 130, Deepwater, New Jersey  
NJDEP SRP PI# 008221  
EPA I.D. No.: NJD002385730**

Dear Mr. Conetta:

As requested by EPA and NJDEP during the April 25, 2018 meeting and as mentioned in the Chemours' Response to Comments Letter on the Comprehensive RCRA Facility Investigation (dated May 11, 2018), attached are the Standard Operating Procedures (SOPs) for the Ongoing 2016 Residential Drinking-Water Well Surveying and Sampling Program.

If you have any further questions or concerns, please feel free to contact me at 302-773-1289 or [Andrew.S.Hartten@chemours.com](mailto:Andrew.S.Hartten@chemours.com).

Respectfully,

A handwritten signature in black ink, appearing to read "Andrew H. Hartten", written in a cursive style.

Andrew H. Hartten  
Chemours Project Director  
Chambers Works, NJ

cc: James Haklar, U.S. EPA  
Helen Dudar, NJDEP

# **Standard Operating Procedures for the Ongoing 2016 Residential Drinking- Water Well Surveying and Sampling Program**

Chemours Chambers Works  
Deepwater, New Jersey

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Project Number: 60554517  
Date: May 2018

## Table of Contents

<b>1.0</b>	<b>Introduction .....</b>	<b>1</b>
<b>2.0</b>	<b>Development of Homeowner Contact List through Issuing of the Result Letters .....</b>	<b>3</b>
<b>3.0</b>	<b>Drinking-Water Wells Not Qualified for Treatment.....</b>	<b>7</b>
<b>4.0</b>	<b>Treatment Offer for Qualified Drinking-Water Wells through Completed Treatment Implementation .....</b>	<b>8</b>
<b>5.0</b>	<b>Routine Quarterly OM&amp;M for GAC Treatment Systems.....</b>	<b>12</b>
<b>6.0</b>	<b>References .....</b>	<b>14</b>

### Figures

Figure 1	2009 Residential Drinking-Water Perfluorooctanoic Acid (PFOA) Surveying and Sampling Program Flow Chart
Figure 2	2016 Residential Drinking-Water Per- and Polyfluoroalkyl Substances (PFAS) Surveying and Sampling Program Flow Chart

### Appendices

Appendix A	Example Surveying and Sampling Offer Letter Sent by Chemours
Appendix B	Example Result Letter for a Homeowner With a Drinking-Water Well Not Qualified for Treatment
Appendix C	Example Result Letter for a Homeowner With a Drinking-Water Well Qualified for Treatment
Appendix D	Drinking-Water Fact Sheets: Perfluorinated Chemicals (PFCs) in Drinking Water
Appendix E	Example of a Public Water Connection Agreement
Appendix F	Photograph of a GAC System
Appendix G	Example of a GAC Treatment System Installation, Operation, and Maintenance Agreement

## 1.0 Introduction

This document details the standard operating procedures (SOPs) for implementing the ongoing 2016 Residential Drinking-Water Per- and Polyfluoroalkyl Substances (PFAS) Surveying and Sampling Program (ongoing 2016 program) for the Chemours Company (Chemours) Chambers Works Complex in Deepwater, New Jersey. This document covers from the point of initial homeowner<sup>1</sup> contact by Chemours through implementation of treatment and operation, maintenance, and monitoring (OM&M), where appropriate.

Figures 1 and 2 are summary flow charts, which show the actions based on the homeowner response/non-response to the surveying and sampling offer from Chemours and/or the results for the drinking-water well. Figure 1 depicts the 2009 Residential Drinking-Water Perfluorooctanoic Acid (PFOA) Surveying and Sampling Program (the 2009 program) summary flow chart for the actions taken in 2009 and categories that were or will be incorporated into the ongoing 2016 program. Figure 2 depicts the ongoing 2016 summary flow chart of the possible outcomes and actions taken based on the homeowner response/non-response and/or the analytical results.

The entire homeowners list of the 2009 program was the initial basis for the ongoing 2016 program (see Figures 1 and 2). As shown in Figure 1, homeowners in the 2009 program with the following result were or will be re-incorporated into the ongoing 2016 program and offered resampling, if they have not yet responded to the ongoing 2016 program offer to sample:

- A PFOA result of less than or equal to 14 parts per trillion (ppt) to less than 400 ppt, or
- A PFOA result of less than or equal to 2 ppt to less than 14 ppt<sup>2</sup>.

As shown in Figure 2, the ongoing 2016 program now consists of the initial 2009 program list, new investigation areas, and other programs (including the re-incorporated 2009 homeowners list described above and others included in the Chemours March 29, 2018 letter submitted to U.S. Environmental Protection Agency, Region 2 (EPA) and New Jersey Department of Environmental Protection (NJDEP).

Figures 1 and 2 include SOP section references to facilitate the combined use of both the summary flow charts and the SOPs listed below:

- The SOP used from the development of a homeowner contact list through the issuing of the result letter (see Section 2).
- The SOP used after the determination that a drinking-water well is not qualified for treatment and the issuing of the result letter (see Section 3).
- The SOP used from the determination that a drinking-water well is qualified for an offer of treatment by Chemours through the completed treatment implementation (see Section 4).

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<sup>1</sup> The term “homeowner” is used versus resident to differentiate between the owner of the property and the drinking-water well and possible tenants or renters of the property.

<sup>2</sup> The Chemours March 29, 2018 letter to EPA and NJDEP indicates that homeowners with 2009 PFOA results between 2 ppt and 5 ppt would not be offered resampling. However, annual resampling for two additional years will be offered starting in 3Q18 to homeowners whose 2009 PFOA results fall between 2 ppt and 5 ppt.

- The SOP used for OM&M after granular activated carbon (GAC) treatment systems are installed (see Section 5).

## 2.0 Development of Homeowner Contact List through Issuing of the Result Letters

This section lists the detailed steps that are followed by the Chemours representative in implementing the ongoing 2016 program from the development of a homeowner address list through the issuing of the result letter.

**Step 1)** Develop the list of homeowners that are to be included in that phase of the ongoing 2016 program. Lists of homeowners to be included in a specific phase are developed via several methods including searches of a tax information database (State of New Jersey Transparency Center Property Tax Information As of Jan 2017: [https://www13.state.nj.us/pls/nj\\_public/f?p=647:5:0::NO:RP](https://www13.state.nj.us/pls/nj_public/f?p=647:5:0::NO:RP)), a well search database (NJDEP DataMiner: <https://www13.state.nj.us/DataMiner>), and/or field reconnaissance by Chemours representatives. In some situations, specific homeowner address lists or potential drinking-water well location address lists were or may be provided to Chemours by EPA or NJDEP (see Chemours' letter submitted March 29, 2018 to EPA and NJDEP).

**Step 2)** Contact each homeowner included in that phase of the ongoing 2016 program and offer participation. Initial contacts with homeowners in a new investigation area are conducted via mailing a series of three letters, three weeks apart (see Appendix A for an example of the type of surveying and sampling offer letter typically sent<sup>3</sup>). Follow-up contacts offering sampling or resampling, or to encourage non-response homeowner to participate typically are via mailing a letter or mailing a letter and completing a follow-up phone call, depending upon the discussions between Chemours, EPA and NJDEP for that phase of the program (see Chemours' letter submitted March 29, 2018 to EPA and NJDEP). If a letter is mailed to an homeowner's address that is not the same address as the address where Chemours believes there may be a used drinking-water well qualified for sampling, a sticky note is added to the letter that indicates it is a drinking-water well at a specific address that is being offered sampling, not a well at the owner's address. For a small portion of the ongoing program, two Chemours representatives were contacting homeowners in person, but an unsafe situation arose and this method is no longer being employed for this program, except on a case-specific basis.

**Step 3)** Process all letters received back by Chemours as "return to sender" (RTS), which indicates that the intended recipient did not receive the letter. The Chemours representative will attempt to use tax databases and other available resources to determine alternate names and addresses. Alternatively, RTS letters may be mailed to "Resident." Chemours will make several attempts to ensure that letters do not continue to come back as RTS before sharing this information with EPA and NJDEP for any additional follow-up efforts that they may choose to complete. RTS information is included in the evergreen (draft versions that are updated) residential contacts spreadsheets that are used to track homeowner responses to offer letters, which are provided to EPA and NJDEP on an approximately monthly basis, prior to project status conference calls.

**Step 4)** Track all homeowners that are "non-response" after completion of the contacts as required in Step 2. "Non-response" indicates that the intended recipient received the letter/s, but the homeowner did not call or respond back to Chemours. Chemours will

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<sup>3</sup> Some of the applicable screening criteria have changed over time, so the screening criteria provided in the surveying and sampling offer letters have also changed. The currently applied screening criteria are presented in Step 10.

perform annual mailing for sampling to be offered via a letter for two additional years for non-response homeowners. If the homeowner responds any time during the two extended years, then Step 5 will be followed. If the homeowner does not respond during the two extended years, then Chemours will not perform any further follow-up and will add this location to the “No Further Follow-up” list to be shared with EPA and NJDEP for any additional follow-up efforts that they may choose to complete. “Non-response” information is included in the evergreen residential contacts spreadsheets that are used to track homeowner responses to offer letters and which are provided to EPA and NJDEP on an approximately monthly basis, prior to project status conference calls.

**Step 5)** Log all phone calls and voice mail messages that the Chemours representative receives into the spreadsheet used to track homeowner contacts and schedule the sampling of the drinking-water well. Homeowner contact information is also included in the evergreen residential contacts spreadsheets which are provided to EPA and NJDEP on an approximately monthly basis, prior to project status conference calls.

When a homeowner first contacts the Chemours representative, the following actions are taken:

1. The Chemours representative returns phone call within 2 to 3 business days of a homeowner calling the Chemours representative.
2. Upon reaching a homeowner, the Chemours representative verifies that the drinking-water well is used and is within the appropriate investigation area, and schedules sampling at the homeowner’s convenience.
3. If the well is located outside of the current investigation area, the Chemours representative notifies the homeowner that if the area is expanded to where the homeowner’s drinking-water well is located, the Chemours representative will follow up and let them know that sampling is being offered.
4. If the homeowner does not answer the phone, the Chemours representative leaves a message asking the homeowner to call back at their convenience. If the homeowner does not return the Chemours representative’s call, the Chemours representative leaves at least three messages encouraging the homeowner to return their call.
5. If the homeowner is non-responsive to the Chemours representative’s multiple attempts to contact with the homeowner, that information is noted in the evergreen residential contacts spreadsheet and shared with EPA and NJDEP, for their continued follow up, if appropriate.

**Step 6)** Chemours representatives who conduct PFAS sampling must have completed the AECOM internal PFAS Sampling Training. At the prearranged schedule date and time, the Chemours representative arrives at the residence and typically samples the drinking-water well from a kitchen tap; although if the resident requests, samples can be collected from any faucet (outside tap, bathroom, etc.). Drinking-water sampling is conducted as per the June 2, 2016 *Quality Assurance Project Plan for the Chemours 2016 PFAS Residential Drinking Water Well Surveying and Sampling Program, Chambers Works, Deepwater, New Jersey*.

**Step 7)** Drinking-water well samples are typically shipped to the laboratory on Tuesdays to ensure receipt by the laboratory on a week day, as issues were encountered previously when samples arrived at the laboratory on weekends.

**Step 8)** As per the June 2, 2016 *Quality Assurance Project Plan for the Chemours 2016 PFAS Residential Drinking Water Well Surveying and Sampling Program, Chambers Works, Deepwater, New Jersey*, the drinking-water well samples are received by the laboratory and analyzed by method 537 Modified to reach a reporting limit of 2 ppt for each of the following target compounds:

375-73-5	PFBS	Perfluorobutanesulfonic acid
335-76-2	PFDA	Perfluorodecanoic acid
307-55-1	PFDoA	Perfluorododecanoic acid
375-85-9	PFHpA	Perfluoroheptanoic acid
355-46-4	PFHxS	Perfluorohexanesulfonic acid
307-24-4	PFHxA	Perfluorohexanoic acid
375-95-1	PFNA	Perfluorononanoic acid
1763-23-1	PFOS	Perfluorooctanesulfonic acid
335-67-1	PFOA	Perfluorooctanoic acid
376-06-7	PFTA	Perfluorotetradecanoic acid
72629-94-8	PFTrDA	Perfluorotridecanoic acid
2058-94-8	PFUnA	Perfluoroundecanoic acid
—	NEtFOSAA	N-ethyl perfluorooctanesulfonamidoacetic acid
—	NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid

**Step 9)** Drinking-water results are reviewed and finalized in accordance with the *Quality Assurance Project Plan for the Chemours 2016 PFAS Residential Drinking Water Well Surveying and Sampling Program* (AECOM, 2016).

**Step 10)** Drinking-water final results are compared to the currently applicable screening criteria, which are provided below:

- EPA's 2016 Lifetime Health Advisory (HA) for PFOS of 70 ppt. If both PFOA and PFOS are detected in a drinking-water well, the individual PFOS concentration and the sum of PFOA and PFOS concentrations are compared to the HA of 70 ppt.
- The New Jersey Drinking Water Quality Institute's (NJDWQI) recommended drinking-water standard of 14 ppt for PFOA, which was accepted by NJDEP in November 1, 2017<sup>4</sup>.
- The NJDWQI's recommended drinking-water standard of 13 ppt for PFNA, which was accepted by NJDEP on November 1, 2017<sup>5</sup>.

Homeowners with drinking-water wells that exceed the applicable screening criteria are qualified to receive an offer of treatment from Chemours. The process of notifying a qualified homeowner typically is started at the same time as the letter generation process (see Step 11). If final results indicate that a well is qualified for treatment, the homeowner is contacted by the Chemours representative, and a temporary provision of bottled water is offered as described in Section 4, Step 1. If the Chemours representative does not directly speak with a homeowner, the Chemours representative leaves a message offering bottled water and requesting the resident to call back and let

<sup>4</sup> When the Expanded Area 3 investigation began in September 2017, the screening criterion applied for PFOA was the NJDEP preliminary health-based guidance for PFOA in drinking-water value of 40 ppt. All Expanded Area 3 results were screened against the recommended drinking-water standard of 14 ppt for PFOA, and all homeowners with PFOA results between 14 ppt and 40 ppt were offered treatment.

<sup>5</sup> When the ongoing 2016 program began, the New Jersey Groundwater Class IIA (NJGWIIA) groundwater quality criterion for PFNA of 10 ppt was applied. Effective March 29, 2018, Chemours began using the NJDEP November 1, 2017 accepted PFNA criterion of 13 ppt in the surveying and sampling offer letters and in determining qualification of drinking-water well results for offer of treatment.



the Chemours representative know if they do or do not want to accept the temporary bottled water provision. In addition, the Chemours representative lets the homeowner know they will be calling back in a few days to provide additional information on the type of treatment to be offered.

**Step 11)** Drinking-water result letters are prepared and mailed within seven days of the results being finalized as described above in Step 9 (see Appendices B and C for example result letters for homeowners with drinking water wells not qualified and qualified for treatment, respectively). Electronic copies of the result letters are provided to the Salem County Health Department, the municipal clerks for the township in which the drinking-water well is located, EPA, and NJDEP. EPA and NJDEP are also provided with the evergreen results spreadsheet and the evergreen map, which contain all results finalized to date for the ongoing 2016 program. In addition, summary reports for the ongoing 2016 program are submitted to EPA and NJDEP at key milestones in the ongoing 2016 program.

If a drinking-water well is not qualified for treatment, then procedures described in Section 3.0 are followed, as appropriate.

If the drinking-water well is qualified for treatment, the procedures described in Section 4 are followed.

### 3.0 Drinking-Water Wells Not Qualified for Treatment

This section lists the steps that are followed by the Chemours representative in implementing the ongoing 2016 program from the determination that a drinking-water well is not qualified for an offer of treatment and the result letter has been mailed to the homeowner.

**Step 1)** Drinking-water well final results are evaluated into two categories based on the results as shown in Steps 2 and 3.

**Step 2)** For results where:

- PFNA result is less than or equal to 2 ppt to less than 13 ppt, or
- PFOA result is less than or equal to 2 ppt or less than 14 ppt, or
- PFOS result is less than or equal to 2 ppt or less than 70 ppt, or
- PFOS plus PFOA result is less than 70 ppt.

Then, annual resampling to take place approximately one year from the date of the original sample collection will be re-offered for two additional years<sup>6</sup>.

If any of the three event results are qualified for treatment, then procedures in Section 4 are followed. If the three event results are not qualified for treatment, then Chemours will not perform any further follow-up and add this resident to the “No Further Follow-up” list to be shared with EPA and NJDEP for any additional follow-up efforts that they may choose to complete<sup>7</sup>.

**Step 3)** For results where PFNA, PFOA, and PFOS results are less than 2 ppt, then Chemours will not perform any further follow-up and add this resident to the “No Further Follow-up” list to be shared with EPA and NJDEP for any additional follow-up efforts that they may choose to complete (see footnote 7 below).

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<sup>6</sup> The Chemours March 29, 2018 letter to EPA and NJDEP indicates that homeowners with PFOA, PFOS, and/or PFNA results between 2 ppt and 5 ppt for PFOA, PFOS, and/or PFNA would not be offered resampling. However, annual resampling for two more years will be now offered starting in 3Q18 to homeowners whose results fall between 2 ppt and 5 ppt.

<sup>7</sup> This follow up will be tracked starting in 2Q18 in the evergreen residential contacts spreadsheets that are used to track homeowner responses to offer letters and which are provided to EPA and NJDEP on an approximately monthly basis, prior to project status conference calls.

## 4.0 Treatment Offer for Qualified Drinking-Water Wells through Completed Treatment Implementation

This section lists the steps that are followed by the Chemours representative in implementing the ongoing 2016 program from the determination that a drinking-water well is qualified for an offer of treatment by the Chemours representative through the completed treatment implementation.

**Step 1)** Drinking-water well final results are evaluated, and homeowners with drinking-water wells that exceed the applicable screening criteria are qualified to receive an offer of treatment from Chemours. The Chemours representative calls the homeowner and informs them that the result letter is being prepared for mailing (see Step 2 below), that the drinking-water well is qualified for treatment (also see Section 2.0, Step 10), and makes an offer for the temporary provision of bottled water until such time as the treatment implementation is completed. [If the resident is not the homeowner, the homeowner is contacted and is responsible for making all decisions regarding the offer of temporary bottled water and treatment, and must inform the Chemours representative if the resident can be the point of contact for all items moving forward with the exception of signing the treatment agreement (see Step 6, below)].

If the Chemours representative does not directly speak with the homeowner, the Chemours representative leaves a message offering the temporary bottled water and requesting the homeowner to return the call and notify the Chemours representative if they do or do not want to accept the temporary bottled water provision. If it is not possible to leave a message, the Chemours representative will call at least three times in an attempt to ensure that the homeowner is aware that the well is qualified for treatment and that an offer of temporary bottled water has been made by Chemours. Temporary bottled water delivery, if accepted, is typically set up for weekly delivery, although homeowners can call the Chemours representative if additional water is needed at any point. The Chemours representative also notifies the homeowner that they will be calling back in a few days to provide additional information on the type of treatment to be offered.

**Step 2)** Drinking-water result letters are prepared and mailed within seven days of the results being finalized (see Section 2.0, Step 11). Result letters for wells qualified for treatment include a decline sheet that the homeowner can use to formally decline the offer of treatment if they choose to do so.

**Step 3)** Homeowners receiving an offer of treatment from Chemours are pulled into a separate spreadsheet that tracks the treatment type to be offered and all additional processes that take place from the acceptance or declining of the offer of temporary bottled water through completion of the treatment. This evergreen spreadsheet is provided to EPA and NJDEP on an approximately monthly basis, prior to project update conference calls.

The Chemours representative evaluates the location of the drinking-water well with respect to existing public water lines to determine whether a connection to public water supply (PWS) will be offered. If PWS connection is not offered for the location, the treatment offered is the installation of a GAC treatment system. Alternatively, the temporary provision of bottled water may be a semi-permanent treatment option, if appropriate for the situation, although this is not typically offered.

**Step 4)** The Chemours representative re-contacts the homeowner with the drinking-water well qualified for treatment and schedules a time to discuss the result letter and explain the treatment option being offered by Chemours.

If the homeowner verbally declines the offer of treatment by Chemours at any point, the Chemours representative encourages the homeowner to sign the decline paperwork included in the result letter (see Appendix C) so that the homeowner and Chemours each can have a copy of the declined treatment offer. (Electronic copies of all declined paperwork to date will be provided in 2Q18 to EPA, NJDEP, the Salem County Health Department, and the municipal clerk for the township in which the drinking-water well is located.)

**Step 5)** The Chemours representative arrives at the prearranged meeting time to discuss the result letter, the treatment offered by Chemours and to answer any question the homeowner may have regarding treatment or other related topics, if the Chemours representative is qualified to do so. Alternatively, if the Chemours representative is not qualified to answer the specific question, the homeowner is referred to Pat Seppi of EPA. Listed below are the steps followed based on treatment offered:

**Bottled Water:** To date, there has only been one situation where temporary bottled water has been offered as the “permanent” treatment. In this one situation, the homeowner intends to demolish the current residence, construct a new residence, abandon the current well, and install a new well. Chemours has agreed to provide temporary bottled water to this homeowner until such time as the new well has been installed and sampled. This verbal offer agreement was accepted by the homeowner<sup>8</sup>. For this homeowner, a regularly scheduled delivery has been set up; although, if the homeowner needs additional water, they can contact the Chemours representative who arranges for extra water to be delivered. If the new well is not qualified for treatment, the provision of bottled water will end. If the new well is qualified for treatment, available treatment options will be evaluated and offered at that time and the procedures in this section will be followed, as appropriate.

**PWS Connection:** If PWS connection is offered, then, during the meeting with the homeowner, the Chemours representative will:

- Provide an information sheet from New Jersey Department of Health (NJDOH) regarding perfluorinated chemicals in drinking water (see Appendix D).
- Explain that the costs of connection will be covered by Chemours, but future water bills will be the homeowner’s responsibility.
- Answer any questions that the homeowner has regarding PWS connection and/or refer the homeowner to Pat Seppi (EPA) if questions arise that the Chemours representative is not qualified to answer.
- Review the Public Water Connection Agreement<sup>9</sup> (see Appendix E).

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<sup>8</sup> This arrangement of bottled water as an interim solution was initially thought to be short term. However, as the homeowner’s plans are delayed, Chemours, in 2018, will generate a bottled water agreement for this homeowner to sign as formal documentation of the offer and acceptance.

<sup>9</sup> Only the homeowner is able to sign the agreements for treatment. If the resident is a tenant or renter, the homeowner must give permission for treatment to be implemented.

**GAC Treatment:** If GAC treatment is offered by Chemours, during the meeting with the homeowner, the Chemours representative will:

- Provide an information sheet from NJDOH regarding perfluorinated chemicals in drinking water (see Appendix D).
- Provide a photograph of what a typical GAC treatment system looks like (see Appendix F).
- Evaluate the plumbing in the home via a questionnaire and visual assessment, and make a preliminary decision regarding where the system can be installed, or if space or other constraints require installation outside of the home (typically inside of a stand-alone shed).
- Discuss the proposed location for the installation of the GAC treatment system with the homeowner.
- Review the GAC Treatment System Installation, Operation, and Maintenance Agreement<sup>10</sup> (O&M agreement; see Appendix G).
- Answer any questions that the homeowner has regarding GAC treatment and/or refer the homeowner to Pat Seppi (EPA) if questions arise that the Chemours representative is not qualified to answer.

**Step 6)** After the PWS Connection Agreement or the O&M agreement is signed by the homeowner, the agreement is forwarded to Chemours for countersigning. After the agreement has been countersigned by Chemours, the treatment implementation is scheduled at the homeowner's convenience.

**Step 7)** Implementation of treatment follows the steps below based on the acceptance of treatment to be implemented.

**PWS Connection:** If the treatment to be implemented is PWS connection, a copy of the signed and counter signed PWS Connection agreement is provided to the homeowner. The Chemours representative then assists the homeowner in submitting a service application to the PWS. Once the application is approved, the plumbing subcontractor installs residential plumbing from the house to the water meter while the PWS installs the water meter. Once the meter is installed, then the PWS starts sending bills directly to the homeowner.

**GAC Treatment System Installation:** If the treatment to be implemented is a GAC treatment system installation, the Chemours representative provides a copy of the signed and counter signed O&M agreement to the homeowner and schedules an installation appointment with the homeowner. During the installation appointment, the following activities are completed by the Chemours representative:

- Review the GAC treatment system installation location with the homeowner and the plumbing subcontractor and confirm that the homeowner has approved of the location. Identify any homeowner belongings that need to be moved. No belongings of the homeowner will be touched or moved without the homeowner's approval.
- Provide oversight for the installation while the plumbing subcontractor completes all needed work to install the system.

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<sup>10</sup> Only the homeowner can sign the agreements for treatment. If the resident is a tenant or renter, the homeowner must give permission for treatment to be implemented.

- Inform the homeowner when the water will be shut off and when the water is turned back on.

If at any point in time the situation seems uncomfortable or unsafe, the Chemours representative and the plumbing subcontractor will stop work, remove themselves from the situation, relocate to a safe place, and contact the AECOM Project Manager and Chemours, if necessary. If necessary, the Chemours representative may also contact the authorities. In an emergency, Chemours representative and the plumbing subcontractor will remove themselves immediately; no reason is required.

Once the GAC treatment system has been installed, the Chemours representative will review the system with the homeowner. The homeowner is reminded that nothing should be placed near or around the GAC treatment system. The three valve bypass is demonstrated so that the homeowner knows that, in case of an emergency, they can bypass their system. They are reminded, however, that it is preferable that only a Chemours representative or the plumbing subcontractor bypass the system. The homeowner is then made aware of some possible after effects of the GAC system including bubbles in their water, pockets of air in the line, and that sometimes there are small pieces of carbon that can be seen in a glass of water or bath but that all of these are normal and will dissipate in the few days following installation. The Chemours representative will again leave contact information and will then inform the homeowner that:

- A health department-required inspection of the installed system will be scheduled at their convenience.
- Quarterly sampling will be conducted to monitor the operation and performance of the system (see Section 5.0).
- A prior to treatment (PT) sample will be collected once a year, typically in the third quarter of each year (see Section 5.0).

## 5.0 Routine Quarterly OM&M for GAC Treatment Systems

This section lists the steps that are followed by the Chemours representative in implementing the ongoing 2016 program for routine monitoring after a GAC treatment system is installed.

**Step 1)** Beginning with the first quarter after the treatment system is installed, the Chemours representative will call each homeowner to schedule quarterly sampling. If the homeowner does not answer the phone, the Chemours representative leaves a message asking the homeowner to call back at their convenience. If the homeowner does not return the Chemours representative's call, the Chemours representative leaves at least three messages encouraging the homeowner to return her call.

If the owner is non-responsive to the Chemours representative's attempts to schedule sampling, that information is noted in the tracking spreadsheet, and a letter is sent to the homeowner and copied electronically to EPA and NJDEP. Beginning with the 3Q18 OM&M event, these letters will also be copied electronically to the Salem County Health Department and to the municipal clerks for the township in which the drinking-water well is located.

**Step 2)** The Chemours representative evaluates the condition of the system and the positions of the bypass valves and answers any questions the homeowner has on the operation of the system. If the bypass valves are observed to be in incorrect position, the Chemours representative will document the bypass condition, place the bypass valves in the correct position, and flush the GAC system by running 10 gallons of water through the treatment system before collecting the water samples.

The Chemours representative then collects treatment system samples from the sample ports after each carbon bed in the treatment system (BED1 and BED2). During the third quarter, an additional sample is collected from the PT sample port. Samples are sent to the laboratory to be analyzed for PFOA, PFOS, and PFNA<sup>11</sup>. The BED1 sample is analyzed each quarter; both BED1 and the PT sample are analyzed in the third quarter. The BED2 sample remains on hold until the analytical results from BED1 are evaluated.

**Step 3)** After analytical results are received from the laboratory and finalized, the project team evaluates the BED1 results. The BED2 sample is analyzed if the analytical results from BED1 meet any of the following criteria:

- The PFOS, or PFOS plus PFOA concentration, is greater than or equal to 70 ppt.
- The PFOA concentration is greater than or equal to 14 ppt.
- The PFNA concentration is greater than or equal to 10 ppt<sup>12</sup>.

If the analytical results from BED1 do not meet any of these criteria, a letter including the BED1 analytical results (plus PT analytical results in the third quarter) is mailed to the homeowner, and the quarterly sampling procedures for that treatment system are complete.

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<sup>11</sup> OM&M samples are collected as described in Section 2.0 Step 6. OM&M samples are analyzed only for the three PFAS that are compared to the screening criteria: PFOA, PFOS, and PFNA. Samples are analyzed as described in Section 2, Step 8.

<sup>12</sup> Starting with the 3Q18 OM&M event, this screening criterion will be 13 ppt to reflect the November 1, 2017 NJDEP proposed standard for PFNA, which was recommended by NJDWQI.

**Step 4)** If the BED1 results meet any of the criteria in Step 3, the project chemist requests that the laboratory analyze the corresponding BED2 sample. The team evaluates the results, and a carbon change out is performed if any of the following criteria are met:

- The PFOS, or PFOS plus PFOA concentration is greater than or equal to 15 ppt,
- The PFOA concentration is greater than or equal to 5 ppt, or
- The PFNA concentration is greater than or equal to 2 ppt.

After the BED2 analytical results are evaluated, a letter including both the BED1 and BED2 analytical results (plus PT analytical results in the third quarter) is mailed to the homeowner. If the analytical results from BED2 do not meet any of the criteria listed in this step, the quarterly sampling procedures for that treatment system are complete. If any of the criteria listed in this step are met, the Chemours representative calls the homeowner to schedule a carbon change out.

**Step 5)** Carbon beds will be replaced every five years if the change-out criteria listed above are not reached within five years.

**Step 6)** After all analytical data for each treatment system sampled during the quarter is finalized (see Section 2, Step 9), a quarterly report letter is prepared for NJDEP and EPA. The report includes the following information in hard copy and electronic copy, except as noted:

- Identification information for each GAC system installed as of the last day of that quarter,
- A figure showing the location of each GAC system installed as of the last day of that quarter,
- A summary of all of the PFOA, PFOS, and PFNA results to date for each treatment system, and
- Electronic copies only of the TestAmerica laboratory reports associated with the GAC sampling conducted during that quarter.

In addition, specific homeowner information such as name, address, and telephone number is not attached to the letter but is included in a separate enveloped marked "Private Personal Information (PPI) – Do Not Release." The following documentation is considered PPI:

- Expanded identification information, with well location and owner information for each treatment system installed as of the last day of that quarter,
- Quarterly analytical result letters sent to the well owners, and
- Letters to well owners who are non-responsive to the request to perform quarterly O&M sampling for that quarter.



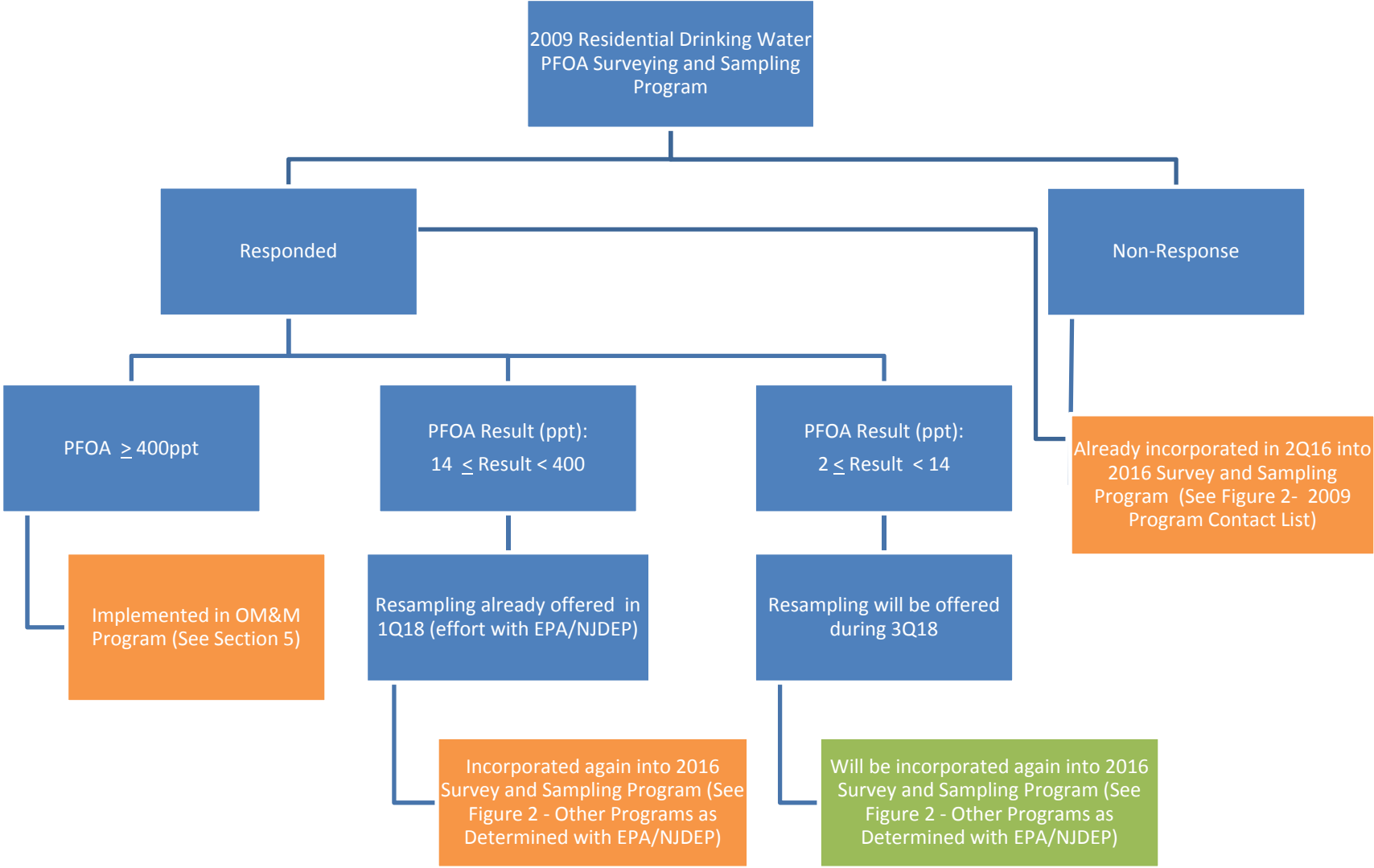
## 6.0 References

AECOM. 2016. *Quality Assurance Project Plan for the Chemours 2016 PFAS Residential Drinking Water Well Surveying and Sampling Program*. Chemours Chambers Works Complex, Deepwater, New Jersey. June.

Chemours. 2018. Letter to Helen Dudar (NJDEP) and James Haklar (EPA Region 2), from Andrew Hartten (Chemours). *Additional Residential Surveying and Sampling Follow up Actions to be Conducted by Chemours, Chemours Chambers Works, Deepwater, New Jersey*. March 29, 2018.

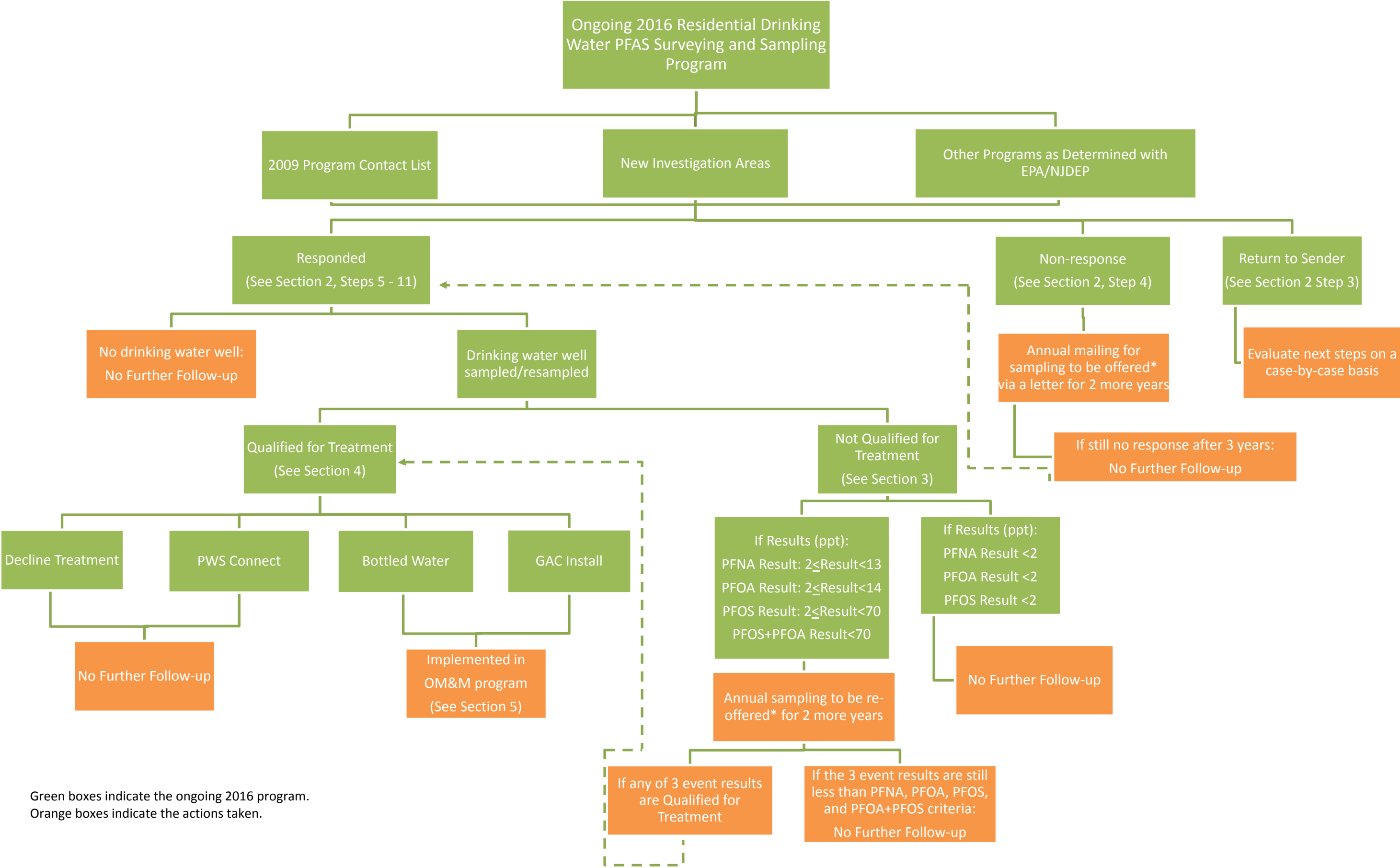
## Figures

**Figure 1**  
**2009 Residential Drinking-Water Perfluorooctanoic Acid (PFOA) Surveying and Sampling Program Summary Flow Chart**



Blue boxes indicate the 2009 program  
Orange boxes indicate the actions taken.  
Green boxes indicate the ongoing 2016 program (see Figure 2).

Figure 2  
2016 Residential Drinking-Water Per- and Polyfluoroalkyl Substances (PFAS) Surveying and Sampling Program Summary Flow Chart



## **Appendix A**

### **Example Surveying and Sampling Offer Letter Sent by Chemours**



The Chemours Company  
1007 Market Street  
PO Box 2047  
Wilmington, DE 19899

302-773-1000 t  
chemours.com



April 10, 2018

### **Drinking Water Well Sampling Offer - Chemours Private Drinking Water Well Surveying and Sampling Program (2016-2018)**

In 2009, E. I. du Pont de Nemours and Company (DuPont) worked in collaboration with the New Jersey Department of Environmental Protection (NJDEP) to conduct a Perfluorooctanoic Acid (PFOA) Private Drinking Water Well Survey and Sampling Program within a two-mile radius surrounding the Chambers Works facility, located in Deepwater, New Jersey. DuPont sampled private drinking water wells to determine if PFOA concentrations in those wells measured 0.40 parts per billion (ppb), or 0.40 micrograms per liter ( $\mu\text{g/L}$ ), or greater, which is the provisional health advisory established by the U. S. Environmental Protection Agency (EPA) Office of Water on January 8, 2009. EPA subsequently developed a drinking water health advisory for PFOA, Perfluorooctane Sulfonate (PFOS) and/or PFOA plus PFOS of 0.07 ppb in May 2016, as explained at <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>. In addition, on November 1, 2017, the NJDEP accepted the New Jersey Drinking Water Quality Institute's recommended drinking water standard of 14 parts per trillion (ppt or 0.014 ppb) for PFOA. At that same time, NJDEP formally proposed standard of 0.013 ppb for perfluorononanoic acid (PFNA), which is also recommended by the New Jersey Drinking Water Quality Institute.

On July 1, 2015, The Chemours Company (Chemours) became an independent publically traded company through the spin-off of DuPont Performance Chemicals. Chemours is currently working in collaboration with U.S. EPA Region 2 and NJDEP to conduct another drinking water well sampling program in approximately the same area.

Results for the current sampling activities conducted near where you reside have shown the presence of PFOA, PFNA and other perfluorinated compounds in drinking water. Chemours is encouraging your participation in the sampling program and requests your permission to sample your drinking water well at this time. If you accept the sampling offer, the water from your well will be analyzed for PFOA, PFNA, and other perfluorinated compounds, and the results will be provided to you at no cost to you. Your participation in this sampling event is greatly appreciated. We encourage you to schedule your drinking water well for sampling as soon as possible by contacting Ms. Shannon Murphy of Chemours at **856-981-1510**. The sampling will be scheduled at your convenience and requires a technician to come to your house for less than 10 minutes to collect a small

container of water. If your residence is connected to a public water supply, please call Ms. Murphy and she will remove your information from our mailing list.

For your information, additional facts regarding perfluorinated compounds can be found at <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/perfluorooctanoic-acid-pfoa-perfluorooctyl-sulfonate>. If you have any questions regarding this sampling program, please feel free to contact Ms. Pat Seppi of U.S. EPA Region 2 at **646-369-0068**.

Sincerely,  
The Chemours Company

A handwritten signature in black ink, appearing to read "Andrew S. Hartten".

Andrew S. Hartten  
Principal Remediation Project Manager  
Corporate Remediation Group

cc: James Haklar, EPA Region 2  
Helen Dudar, NJDEP

## **Appendix B**

### **Example Result Letter for a Homeowner With a Drinking-Water Well Not Qualified for Treatment**





The Chemours Company  
1007 Market Street  
PO Box 2047  
Wilmington, DE 19899

302-773-1000 t  
chemours.com

April 17, 2018

[REDACTED]  
[REDACTED]  
[REDACTED]

**Chemours Private Drinking Water Well Sampling  
Program (2016-2017) Results – [REDACTED]**

In 2009, E. I. du Pont de Nemours and Company (DuPont) worked in collaboration with the New Jersey Department of Environmental Protection (NJDEP) to conduct a Perfluorooctanoic Acid (PFOA) Private Drinking Water Well Survey and Sampling Program within a two-mile radius surrounding the Chambers Works facility, located in Deepwater, New Jersey. DuPont sampled private drinking water wells to determine if PFOA concentrations in those wells measured 0.40 parts per billion (ppb), or 0.40 micrograms per liter (µg/L), or greater, which was the provisional health advisory established by the U. S. Environmental Protection Agency (USEPA) Office of Water on January 8, 2009. USEPA developed a drinking water health advisory for PFOA of 0.07 ppb, for perfluorooctanesulfonic acid (PFOS) of 0.07 ppb, and recommended 0.07 ppb for PFOA and PFOS combined in May 2016, as explained at <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>. In addition, on November 1, 2017, the New Jersey Department of Environmental Protection (NJDEP) accepted the New Jersey Drinking Water Quality Institute's recommended drinking water standard of 14 parts per trillion (ppt or 0.014 ppb) for PFOA. Further, NJDEP has developed an interim specific groundwater quality criterion for perfluorononanoic acid (PFNA) of 0.01 ppb.

On July 1, 2015, The Chemours Company (Chemours) became an independent publically traded company through the spin-off of DuPont Performance Chemicals. Chemours is working in collaboration with USEPA Region 2 and NJDEP to conduct a drinking water well sampling program.

Attached please find the results of the drinking water well sampling conducted recently by Chemours at your residence or property. Note that results are provided for 14 perfluorinated compounds, including PFOA, PFOS and PFNA. The PFOA, PFOS and PFNA results for your drinking water well were compared to the USEPA health advisory for PFOA and PFOS, the NJDEP drinking water standard for PFOA, and the NJDEP interim specific groundwater quality criterion for PFNA that are listed above. The results for your well were less than each of these values and therefore, your drinking water well is not qualified for treatment.

If you have any questions regarding your results or this program, please feel free to contact Ms. Pat Seppi of USEPA Region 2 at **646-369-0068**.

Sincerely,  
The Chemours Company

A handwritten signature in black ink, appearing to read "Andrew S. Hartten", is written over a white background.

Andrew S. Hartten  
Principal Remediation Project Manager  
Corporate Remediation Group

cc: James Haklar, USEPA Region 2 (electronic copy)  
Helen Dudar, NJDEP (electronic copy)  
Rita Shade, Salem County Department of Health (electronic copy)  
June Proffitt, Carney's Point Municipal Clerk (electronic and hard copy)

## **Appendix C**

### **Example Result Letter for a Homeowner With a Drinking-Water Well Qualified for Treatment**



The Chemours Company  
1007 Market Street  
PO Box 2047  
Wilmington, DE 19899

302-773-1000 t  
chemours.com

April 17, 2018

[REDACTED]  
[REDACTED]  
[REDACTED]

**Chemours Private Drinking Water Well Sampling  
Program (2016-2017) Results – [REDACTED]**

In 2009, E. I. du Pont de Nemours and Company (DuPont) worked in collaboration with the New Jersey Department of Environmental Protection (NJDEP) to conduct a Perfluorooctanoic Acid (PFOA) Private Drinking Water Well Survey and Sampling Program within a two-mile radius surrounding the Chambers Works facility, located in Deepwater, New Jersey. DuPont sampled private drinking water wells to determine if PFOA concentrations in those wells measured 0.40 parts per billion (ppb), or 0.40 micrograms per liter ( $\mu\text{g/L}$ ), or greater, which was the provisional health advisory established by the U. S. Environmental Protection Agency (USEPA) Office of Water on January 8, 2009. USEPA developed a drinking water health advisory for PFOA of 0.07 ppb, for perfluorooctanesulfonic acid (PFOS) of 0.07 ppb, and recommended 0.07 ppb for PFOA and PFOS combined in May 2016, as explained at <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>. In addition, on November 1, 2017, the New Jersey Department of Environmental Protection (NJDEP) accepted the New Jersey Drinking Water Quality Institute's recommended drinking water standard of 14 parts per trillion (ppt or 0.014 ppb) for PFOA. Further, NJDEP developed an interim specific groundwater quality criterion for perfluorononanoic acid (PFNA) of 0.01 ppb.

On July 1, 2015, The Chemours Company (Chemours) became an independent publically traded company through the spin-off of DuPont Performance Chemicals. Chemours is working in collaboration with USEPA Region 2 and NJDEP to conduct a drinking water well sampling program.

Attached please find the results of the drinking water well sampling conducted recently by Chemours at your residence or property. Note that results are provided for 14 perfluorinated compounds, including PFOA, PFOS and PFNA. The PFOA, PFOS and PFNA results for your drinking water well were compared to the USEPA health advisory for PFOA and PFOS, the NJDEP drinking water standard for PFOA, and the NJDEP interim specific groundwater quality criterion for PFNA that are listed above. The results for your well indicate that one or more of the above referenced current standards have been met or exceeded and therefore, your drinking water well will require treatment to meet established standards. A Chemours' representative will be contacting you shortly to discuss the form of treatment that will be offered to you. If you choose to decline this

██████████  
April 17, 2018

Page 2

offer of treatment, please sign below and return this letter in the self-addressed stamped envelope.


If you have any questions regarding your results or this program, please feel free to contact Ms. Pat Seppi of U.S. EPA Region 2 at **646-369-0068**.

Sincerely,  
The Chemours Company



Andrew S. Hartten  
Principal Remediation Project Manager  
Corporate Remediation Group

cc: James Haklar, USEPA Region 2 (electronic copy)  
Helen Dudar, NJDEP (electronic copy)  
Rita Shade, Salem County Department of Health (electronic)  
Melinda Taylor, Oldmans Township Municipal Clerk (electronic)

  
April 17, 2018

Page 3

I decline the offer of treatment from Chemours.

---

(Owner's Signature and Date of Decline)

## **Appendix D**

### **Drinking-Water Fact Sheets: Perfluorinated Chemicals (PFCs) in Drinking Water**



# Drinking Water Facts: Perfluorinated Chemicals (PFCs) in Drinking Water



- Perfluorinated chemicals (PFCs) are a group of chemicals with many commercial and industrial uses.
- PFCs have been associated with a variety of adverse health effects in humans but it has not been established that PFCs directly cause these effects.
- PFCs are not regulated in drinking water but New Jersey is taking steps towards future regulation of PFCs.

## What are perfluorinated chemicals (PFCs)?

Products made from man-made perfluorinated chemicals (PFCs) can repel water and oil, and are resistant to heat and chemical reactions. They therefore have important industrial and commercial uses. PFCs are used in production of waterproof and stain proof fabric, in some stick-free cookware, in "leak-proof" coatings on packaging materials, in fire-fighting foams, and in other uses.

- **PFOS** – perfluorooctane sulfonate
- **PFOA** – perfluorooctanoic acid
- **PFNA** – perfluorononanoic acid
- **PFHxS** – perfluorohexane sulfonate

PFCs can enter drinking water through industrial release to water or air, discharges from sewage treatment plants, land application of contaminated sludge, and use of fire-fighting foam.

These compounds are not broken down in the body. Four types of PFCs have been found in the blood (serum) of greater than 98% of the United States population. These four PFCs stay in the body for many years. **PFCs build up and stay in the human body and the amount goes down very slowly over time.**

## Where can PFCs be found?

Because PFCs do not break down, they remain in the environment for a long time. They have been found in water, air, soil, house dust, wildlife, and polar ice caps. Some PFCs, including PFOS and PFNA, accumulate in fish living in contaminated waters.

Some PFCs can dissolve in water. Therefore, drinking water may be a major source of exposure to PFCs for people living in communities with contaminated drinking water. Other sources of PFC exposure include food, food packaging, consumer products, house dust, indoor and outdoor air, and at workplaces where PFCs are made or used.

## How can I be exposed to PFCs?

Exposure to PFCs in drinking water is primarily from ingestion. Exposure to PFCs through other household uses of water such as showering, bathing, laundry and dishwashing is not significant.

## Are PFCs harmful to my health?

There is considerable information on the health effects of PFCs in humans and animals but more information is continually becoming available. In experimental animals, PFCs have been found to cause developmental, immune, neurobehavioral, liver, endocrine, and metabolic toxicity, generally at levels well above human exposures. Studies of the general population, communities with drinking water exposures, and exposed workers suggest that PFCs increase the risk of a number of health effects. The most consistent human health effect findings for PFOA – the most well-studied of the PFCs – are increases in serum cholesterol, some liver enzymes, and uric acid levels.

PFOA and PFOS studies revealed tumors in rodents. In a community significantly exposed to PFOA through drinking water, PFOA exposure was associated with higher incidence of kidney and testicular cancers.

## How can PFCs affect children?

In experimental animals, PFCs cause developmental effects. In humans, exposure to PFCs before birth or in early childhood may result in decreased birth weight, decreased immune responses, and hormonal effects later in life. More research is needed to understand the role of PFCs in developmental effects.

Infants and children consume more water per body weight than older individuals, so their exposures may be higher than adults in communities with PFCs in drinking water. They may also be more sensitive to the effects of PFCs.



**Continue to  
Page 2**



## Continued...

When PFCs are elevated in a drinking water supply, it is advisable to use bottled water to prepare infant formula for bottle-fed babies. Beverages for infants, such as juice made from concentrate, should also be prepared with bottled water. PFCs are present in breast milk. **Based on the scientific understanding at this time, since the benefits of breastfeeding are well-established, infants should continue to be breastfed. Pregnant, nursing, and women considering having children may choose to use home water filters or bottled water for drinking and cooking to reduce PFCs in your water.** However, exposure to fetuses and nursing infants is influenced by past exposures, body burden, and slow excretion of these substances from the body, so risk reduction will not be immediate.

## What levels of PFCs found in drinking water are safe to drink?

USEPA has issued a lifetime drinking water Health Advisory for PFOA and PFOS of **70 parts per trillion (ppt)** or (ng/L) either individually or when concentrations of PFOA and PFOS are combined. A Health Advisory identifies the concentration of a contaminant in drinking water at which adverse health effects are not anticipated to occur.

The New Jersey Department of Environmental Protection (NJDEP) developed a guideline for **chronic (lifetime)** exposures to PFOA of **40 ppt (ng/L)**. NJDEP has also established an interim specific ground water criterion for PFNA of **10 ppt (ng/L)**.

## How do I know if I have PFCs in my drinking water?

Large public water systems in the U.S. and a subset of smaller water systems were required to test for PFCs as part of the USEPA Unregulated Contaminant Monitoring program. Each of the water systems which tested for PFCs have reported their PFC results in your annual Consumer Confidence Report (CCR). The CCR is often available online or you can reach out to your water provider.

The only way to know whether your private well has PFCs is to have it tested. To find a laboratory certified to test for PFCs you can contact NJDEP Office of Quality Assurance at 609-292-3950 or access the information at: <http://www.nj.gov/dep/enforcement/oqa/certlabs.htm>

## What should I do if I am concerned about PFCs in my drinking water?

PFCs are not removed from water by boiling. **If tap or well water is found to contain PFCs, people may choose to use home water filters or bottled water for drinking and cooking to reduce PFCs in their water.**

Granular activated carbon filters or reverse osmosis water treatment devices are technologies which can reduce the level of PFCs in drinking water. However, these technologies currently commercially available in point-of-use (POU) filters (filters attached to a tap) or whole house filters are not specifically certified by the National Sanitation Foundation (NSF) to remove PFCs. The Minnesota Department of Health tested several POU water treatment devices and found many to be effective, more information is available at the following link (<http://www.health.state.mn.us/divs/eh/wells/waterquality/poudevicefinalsummary.pdf>). If a treatment is used, it is important to follow the manufacturer's guidelines for maintenance and operation.

## What can I learn from getting my blood tested for PFCs?

PFCs can be measured in your blood serum, but this is not a routine test. While a blood test may indicate whether you have been exposed to PFCs, results cannot be used to predict health effects nor can they be linked to specific health problems. Also test results cannot, in general, be used to specifically predict sources of exposure once exposed and there is no treatment to reduce levels of PFCs in blood.

Since 2003, a national biomonitoring program has been measuring PFCs in blood among the U.S. population. This information can be used to determine whether the levels of PFCs in your blood are higher than national background levels.

## More information and resources about PFCs can be found at:

<http://nj.gov/health/eohs/index.shtml>

Updated May 2016



## **Appendix E**

### **Example of a Public Water Connection Agreement**

### **Public Water Connection Agreement**

In 2009, E. I. du Pont de Nemours and Company (DuPont) worked in collaboration with the New Jersey Department of Environmental Protection (NJDEP) to conduct a Perfluorooctanoic Acid (PFOA) Private Drinking Water Well Survey and Sampling Program within a two-mile radius surrounding the Chambers Works facility, located in Deepwater, New Jersey. DuPont sampled private drinking water wells to determine if PFOA concentrations in those wells measured 0.40 parts per billion (ppb) or micrograms per liter ( $\mu\text{g/L}$ ), or greater, which was the provisional health advisory established by the U. S. Environmental Protection Agency (USEPA) Office of Water on January 8, 2009. In addition, on November 1, 2017, the NJDEP accepted the New Jersey Drinking Water Quality Institute's recommended drinking water standard of 0.014 ppb for PFOA and 0.013  $\mu\text{g/L}$  for perfluorononanoic acid (PFNA), which was accepted by NJDEP in November 1, 2017. Based on this new Health Advisory for PFOA and PFOS, the NJDEP criteria for PFNA and PFOA, the Chemours Company (hereafter referred to as Chemours) Chambers Works in Deepwater. In June, 2016, Chemours began a second phase of residential sampling and drinking water wells exceeding the criteria above are qualified for treatment. At select locations treatment offered is connection to a public water supply.

I (we), \_\_\_\_\_, the owner(s) (hereafter referred to collectively as Owner of the parcel of real estate and improvements located at \_\_\_\_\_ (hereafter referred to as the Property), consent to have The Chemours Company (Chemours; formerly DuPont) and its designated contractor(s) enter on to the Property to connect the Property to the New Jersey American Water (NJAW). Owner consent is contingent upon the conditions provided below. Chemours' fulfillment of the obligations specified in this Agreement is also contingent upon the conditions below.

**Condition 1.** Chemours will provide at its costs all construction, labor, and material necessary to connect the Property to NJAW, including tapping fees and installation fees. The owner will be responsible for payment of costs once connection to NJWA is complete.

**Condition 2.** Chemours will provide at its cost all labor and materials necessary to restore any damage to the Property that results from Chemours' work connecting the Property to NJAW. Restoration shall consist of returning all improvements on the Property damaged by Chemours to as near as possible the condition existing on the date that such activities begin. Owner agrees that where residential grass is damaged as part of the construction work, reseeding of the damaged area is acceptable.

**Condition 3.** Chemours will be responsible for personal injury or property damage caused by negligence in the performance of the work described in

Conditions 1 and 2. Chemours will not be responsible for any damage caused by Owner's negligence.

**Condition 4.** Chemours and its contractor(s) may have access to the Property during normal business hours (Monday through Friday between 8:00 a.m. and 5:00 p.m.) to perform the connection and any necessary restoration. When Chemours must enter the primary living space, it will seek with Owner a mutually agreeable time to do so.

**Condition 5.** Owner grants Chemours the authority to obtain at its cost all necessary federal, state, and county permits for completion of the work described above on behalf of Owner as required.

**Condition 6.** Chemours' designated contractor(s) will be licensed, bonded, and insured.

Owner(s)' consent is provided on this date, \_\_\_\_\_ by:

\_\_\_\_\_  
Owner(s)' Signature

and \_\_\_\_\_  
Owner(s)' Signature

\_\_\_\_\_  
Owners(s)' Printed Name(s)

and \_\_\_\_\_  
Owners(s)' Printed Name(s)

Agree by Chemours:

Andrew S. Hartten, Principal Remediation Project Manager, representing The Chemours Company  
Printed Name, Title

\_\_\_\_\_  
Chemours Signature

\_\_\_\_\_  
Date

## **Appendix F**

### **Photograph of a GAC System**

Photograph of a GAC System



## **Appendix G**

### **Example of a GAC Treatment System Installation, Operation, and Maintenance Agreement**

## **Granular Activated Carbon Treatment System Installation, Operation, and Maintenance Agreement**

In 2009, E. I. du Pont de Nemours and Company (DuPont) worked in collaboration with the New Jersey Department of Environmental Protection (NJDEP) to conduct a Perfluorooctanoic Acid (PFOA) Private Drinking Water Well Survey and Sampling Program within a two-mile radius surrounding the Chambers Works facility, located in Deepwater, New Jersey. In June, 2016, Chemours began a second phase of residential surveying and sampling. In May 2016, U. S. Environmental Protection Agency developed a drinking water health advisory for perfluorooctanoic acid (PFOA) of 0.07 ppb, for perfluorooctanesulfonic acid (PFOS) of 0.07 ppb, and recommended 0.07 ppb for PFOA and PFOS combined. In addition, on November 1, 2017, the NJDEP accepted the New Jersey Drinking Water Quality Institute's recommended drinking water standard of 0.014 ppb for PFOA and 0.013 µg/L for perfluorononanoic acid (PFNA), which was accepted by NJDEP in November 1, 2017. Residential sampling and drinking water wells exceeding the criteria above are qualified for treatment. Based on the new Health Advisory for PFOA and PFOS, the NJDEP criteria for PFNA and PFOA, the Chemours Company (hereafter referred to as Chemours) Chambers Works in Deepwater, New Jersey, is now offering installation of granular activated carbon treatment (hereafter referred to as GAC Treatment System) if the measured concentration of PFOA, PFOS or PFNA in the drinking water is exceeds any of these criteria in those drinking water wells.

I (we), \_\_\_\_\_, the owner(s) (hereafter referred to as Owner(s)) of the parcel of real estate and improvements located at \_\_\_\_\_ (hereafter referred to as the Property), consent to have Chemours) and its designated contractor(s) enter on to the Property to install a GAC Treatment System and connect it to the water supply line running from the Property's well to the primary living space on the Property. The GAC Treatment System is offered to the Owner(s) of the Property by Chemours. Owner(s)' consent is contingent upon the conditions provided below. Fulfillment by Chemours of its obligations specified in this Agreement is also contingent upon the conditions below.

**Condition 1.** Chemours will provide at its cost all construction, labor and materials necessary to install the GAC Treatment System and connect it to the water supply line running from the Property's source water to the primary living space on the Property.

**Condition 2.** Chemours will provide at its cost all labor and materials necessary to restore any damage to improvements on the Property that result from Chemours' work installing the GAC Treatment System and connecting it to the water supply line. Restoration shall consist of returning all improvements on the Property damaged by Chemours to as near as possible the condition existing on the date that installation and connection activities begin. The Owner(s) agree that in the case of grass that is damaged as part of the construction work, reseeding of the damaged area is acceptable.

**Condition 3.** Chemours will pay for all operation and maintenance of the GAC Treatment System, including timely replacement of the carbon filtering medium, based on quarterly sampling and analysis results. All operation, maintenance and filter replacement will be performed by Chemours' designated contractor(s). Chemours will provide for operation and

maintenance of the GAC Treatment System until Chemours demonstrates to the satisfaction of EPA that the water system's source water prior to treatment contains PFOA, PFOS or PFNA below regulatory drinking water standards for four consecutive quarters and treatment can then be terminated. When Chemours' obligation to operate and maintain the GAC Treatment System ends, Chemours will pay all expenses to remove the GAC Treatment System entirely and return the Property to its condition before the equipment's installation.

**Condition 4.** Chemours will be responsible for personal injury or property damage caused by negligence in the performance of the work described in Conditions 1, 2, and 3 or by malfunction of the GAC Treatment System. Chemours will not be responsible for any damage caused by the Owner(s) negligence.

**Condition 5.** Chemours and its contractor(s) may have access to the Property during normal business hours (Monday through Friday between 8:00 a.m. and 5:00 p.m.) to perform the installation, connection, sampling and any necessary restoration. When Chemours and its contractor(s) must enter the primary living space, it will seek with the Owner(s) a mutually agreeable time to do so.

**Condition 6.** Owner(s) grant Chemours the authority to obtain at its cost all necessary federal, state, and county permits for completion of the work described above on behalf of Owner(s) as required.

**Condition 7.** Chemours' designated contractor(s) will be licensed, bonded and insured.

Owner(s)' consent is provided on this date, \_\_\_\_\_ by:

\_\_\_\_\_ and \_\_\_\_\_  
Owner(s)' Signature

\_\_\_\_\_ and \_\_\_\_\_  
Owners(s)' Printed Name(s)

Agree by Chemours:

Andrew S. Hartten, Principal Remediation Project Manager, representing The Chemours Company  
Printed Name, Title

\_\_\_\_\_  
Chemours Signature

\_\_\_\_\_  
Date